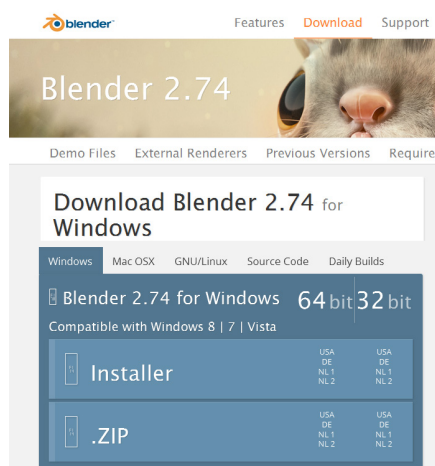
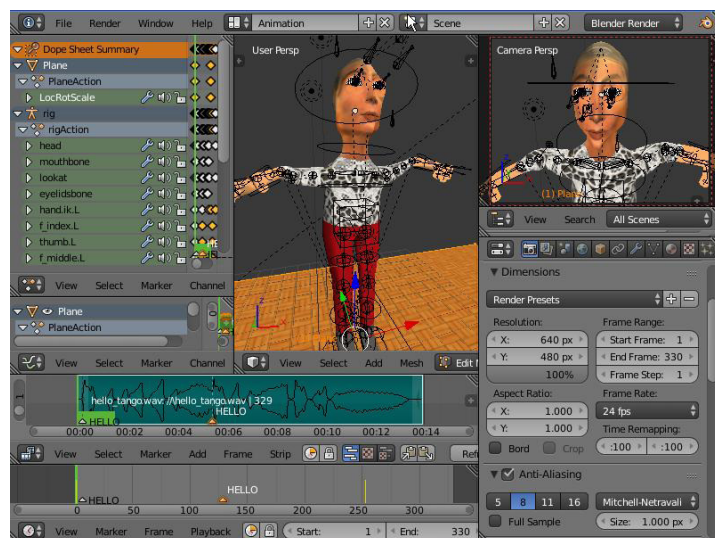
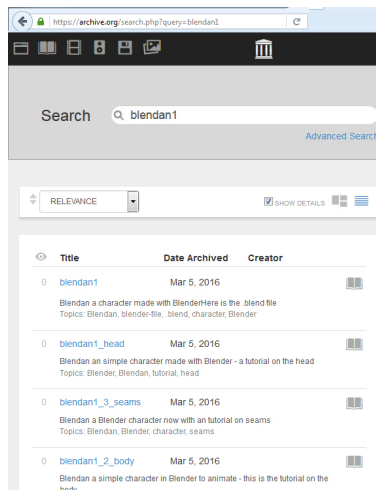
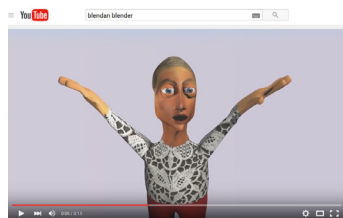


Blender 0 intro p. 1

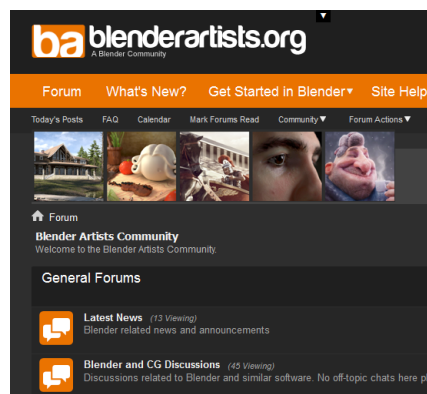
This tutorial is on how to create a simple character called Blenden you can find here <https://www.youtube.com/watch?v=6b5h7j0qexw>

The tutorials parts and the Blender-file you can search for on <https://archive.org/>:
blendan_0_intro.pdf
blendan_1_head.pdf
blendan_2_body.pdf
blendan_3_seams.pdf
blendan_4__texture.pdf
blendan_5_skeleton.pdf
blendan_6_eyes.pdf
blendan_7_mouth_eyelids.pdf
blendan_8_animation.pdf

The tutorial is made with Blender 2.74



Blender is an advanced 3D-animation program like 3ds Max, Maya, Cinema 4D, Houdini, Light Wave, Modo ... programs that cost thousands of dollars. Blender is free! just download and install: <https://www.blender.org/download/> The program will take up about 300 Megabytes on your hard-disc.



blenderartists.org is a good place to get help, see what others have done and show your own stuff. You can find tutorials on youtube.com or vimeo.com

To learn more on how to make characters and animate I can recommend David Ward and his tutorials Groundhog and Tim.



Character Modeling: Creating a Cartoon-Style Groundhog -- Part 03

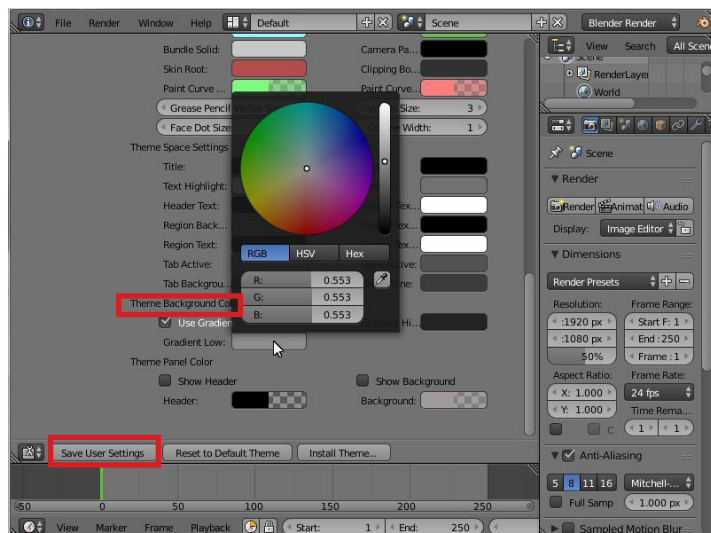
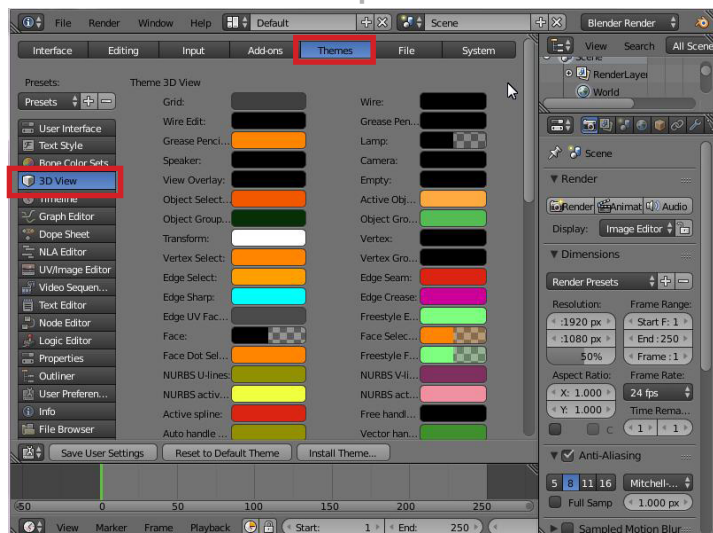
David Ward's Groundhog is in 4 parts - each part about an hour.



Tim - Pt 22 - Achieving a Stop-Motion effect in Blender

David Ward's tutorial Tim has 23 parts - each part about half an hour.

Blender 0 intro p. 2 3D view preferences and AutoRun Python Scripts



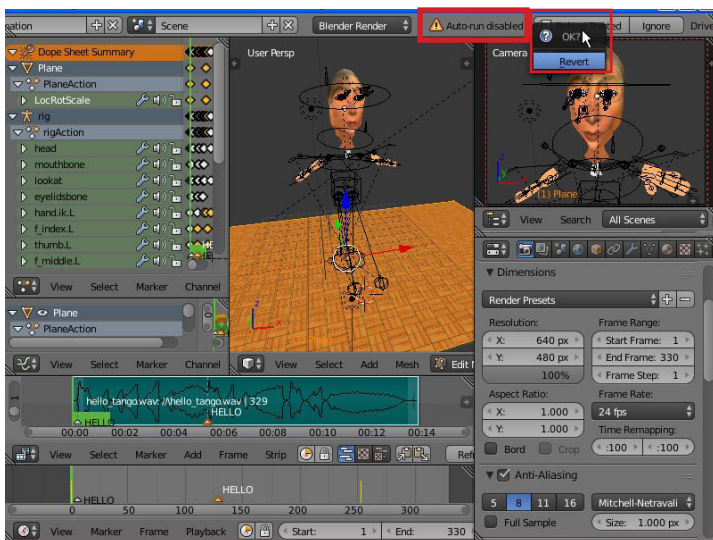
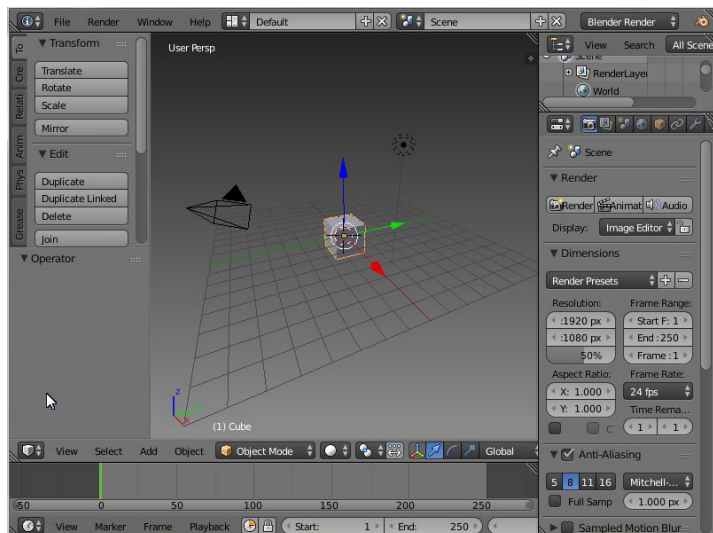
You can go to File > User Preferences or CTRL+ALT+U to get there.

Under the tab Themes you can change Blender's appearance. Click the button 3D View and you get a lot of colors to choose from for the 3D window view.

If the 3D scene looks dark you can scroll down and find: Theme Background Color and tick off Use Gradient and then choose a color/grayness for Gradient Low and Gradient High.

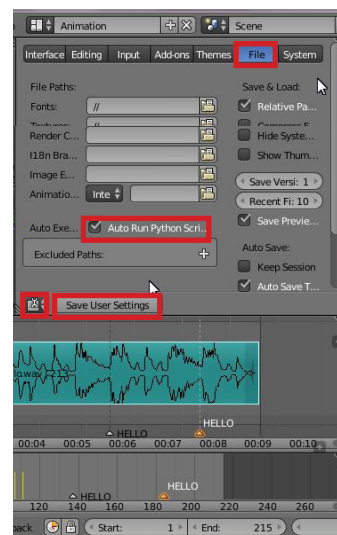
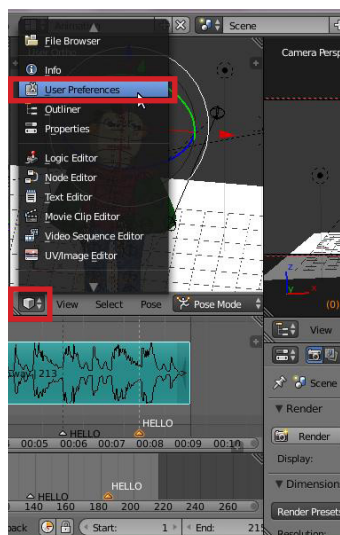
And then click the button Save User Settings

If you now go back to the 3D window it is not longer black - now it is shaded from e.g. lightgray to e.g. darkgrey.



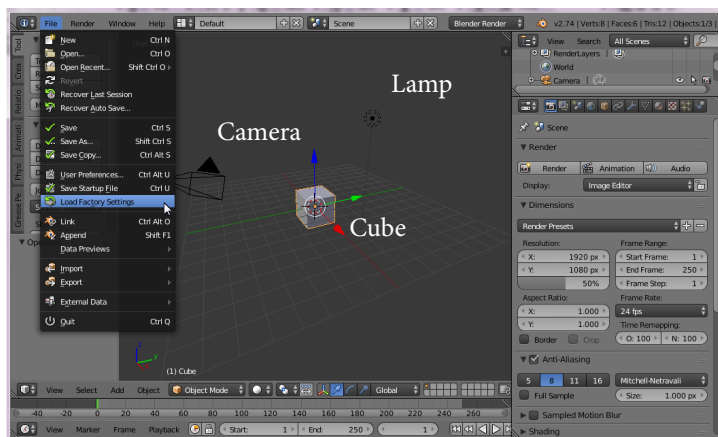
Blender uses - Addons - written in the programming language Python. Those addons can be viruses. The addons coming with Blender then you install it is totally safe but if you download new addons they can infect your computer so only download safe addons.

To use addons in Blender is from start disabled. So if you download the Blender-file with the character Blendan - the character is broken and you will get a warning triangle with the text Autorun disabled. You can click the button Reload Trusted and you can say OK to Revert. And Blendan will no longer be broken.



You can go to the User Preference window and under the tab File tick AutoRun Python Scripts och then click the button Save User Settings and go back to the 3D view and the character Blendan will be OK.

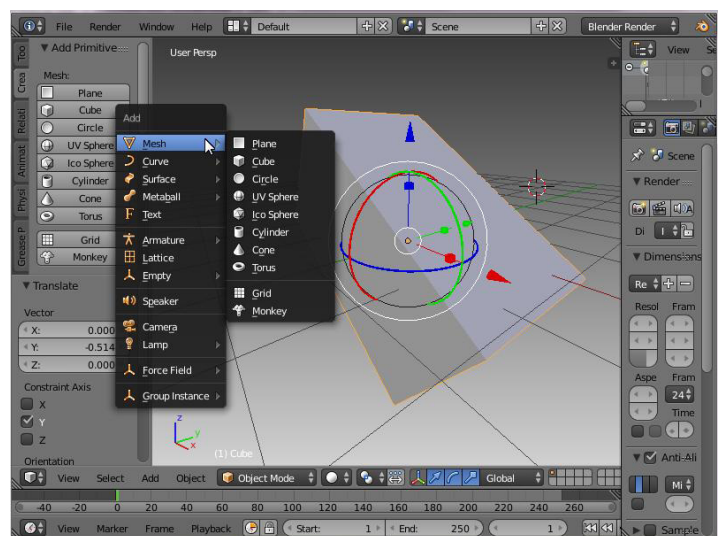
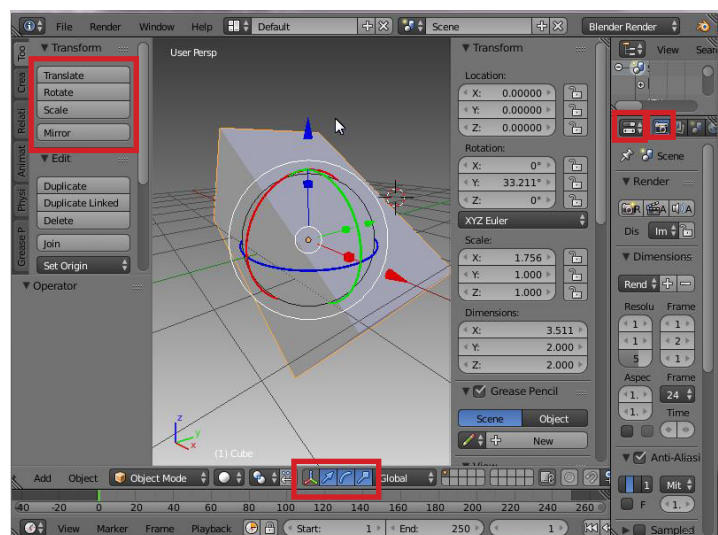
If you never have used a 3D-program or Blender it is a lot to grab. This is how Blender looks then you start it. A 3D-scene with a cube, a lamp and a camera. If it doesn't look like this you can go to **File > Load Factory Settings**. And you will get a 3D-scene that looks like below.



To **Zoom** the 3D-scene scroll the **middle mouse button(MMB)**.

To **Rotate** the 3D-scene hold down the mouse wheel(MMB) and drag the mouse.

To **Pan** the 3D-scene hold down SHIFT and hold down the mouse wheel(MMB) and drag the mouse.

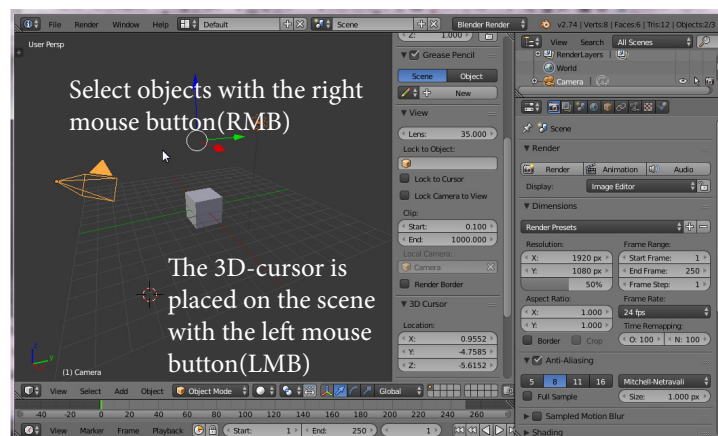


Left click somewhere on the 3D-scene to place the 3D-cursor and then you can use the tab Tool on the Tools menu to place some object on the scene where the 3D-cursor is situated. SHIFT+A and you will get a menu with different objects to place on the 3D-scene.

With your **right mouse button(RMB)** you can select the objects. Holding down the SHIFT-key you can select several objects. The latest selected is in bright yellow.

A-key alternate between selecting all and nothing.

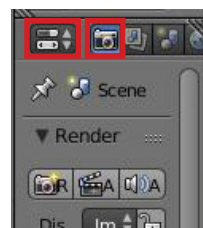
With your **left mouse button(LMB)** you can place the 3D-cursor on the scene. The 3D-cursor is used then you place new objects on the scene and you can use it to rotate the objects around it.



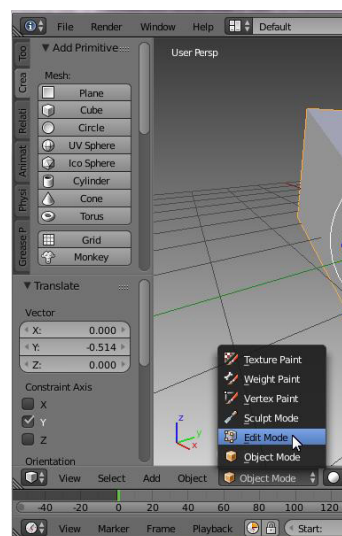
When you are working in Blender the fastest way is to use keyboard shortcuts. Test it! Hold the mouse pointer over the 3D-view and press the T-key and the Tools menu on the left side of the 3D-view will show up/disappear. The N-key shows and hides the 3D-views Property menu on the right hand side of the 3D-view.

You can use Translate on the Tools menu to move(Grab) a selected object(s) or use the G-key. Use Rotate on the Tools menu or the R-key. Use Scale on the Tools menu or the S-key. You can also use values to move a certain distance. G and then X and then 3 - G+X+3 will move an selected object a distance of 3 on the X-axis.

You can also turn on symbols on the menu below the 3D-view for move, rotate and scale.



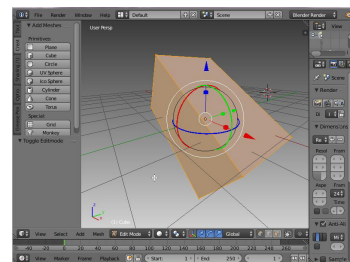
From the Camera tab on the Properties menu you can render images and animations. Or use the F12-key to render an image. F3-key will save the image. ESC-key and you will get back to the 3D-view.

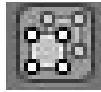
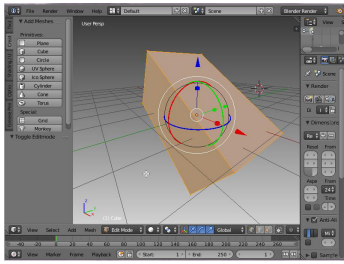


Select the cube in Object Mode. Go to Edit Mode. You can use the TAB-key to go to Edit Mode.

In Edit Mode you can change the cube.

The TAB-key in Edit Mode and you will go back to Object Mode.





Deselect this button and you can look through the cube - also see its backside.

In Edit Mode you can use the A-key to select and deselect everything.
The selection is colored orange.

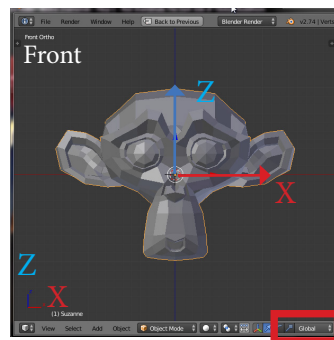
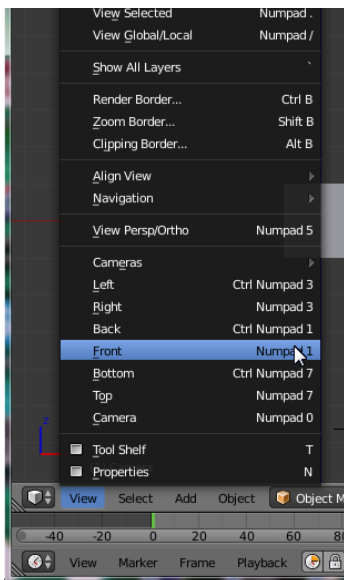
You can choose between selecting:

Vertex - vertices - the corners of the cube.

Edge(s) - the edges of the cube

Face(s) - the sides of the cube

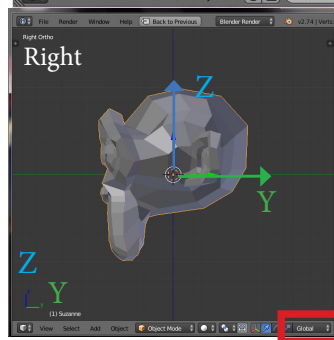
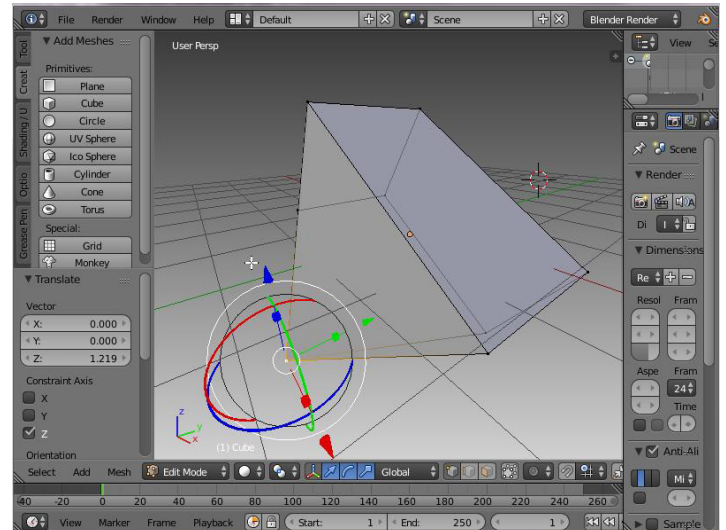
Left mouse button to select
SHIFT+left mouse button to select several vertices, edges or sides.



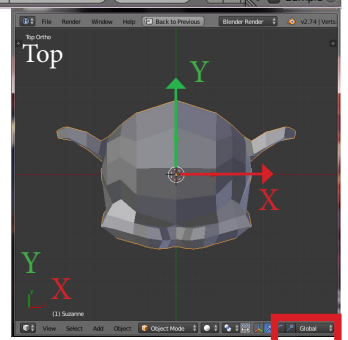
The scene in Front view.
X-axis points to the right.
Z-axis points upwards.

There is Global X,Y and Z-axis for the 3D-scene and Local axis for the objects.

To have a look on the 3D-scene from the Front you can go to View > Front. If you have got a Numpad you can press 1 to go to the Front view.



The 3D-scene in Right view.
Y-axis points backwards.
Z-axis points upwards.

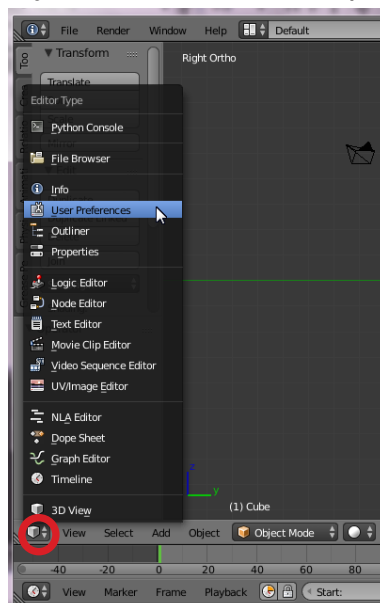


The 3D-scene in Top view.
X-axis points to the right and
Y-axis points upwards.

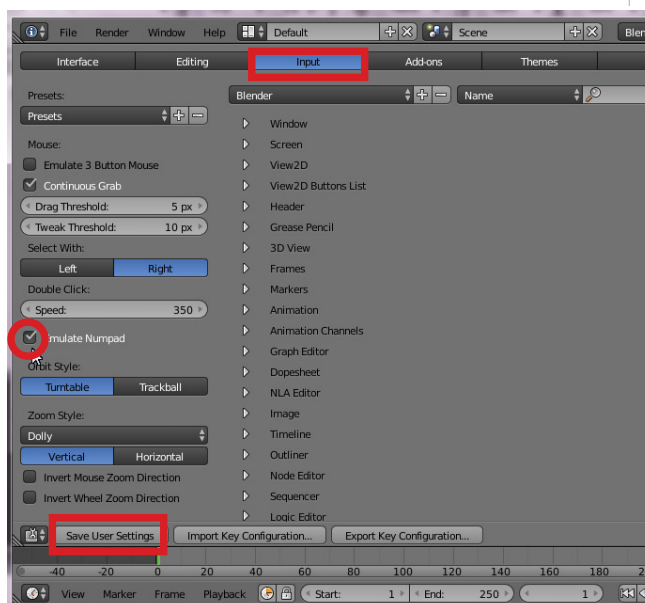
Num	/	*	-
7	8	9	+ Zoom Out
4	5	6	+ Zoom In
1	2	3	
0	Camera	Centre	Enter

- 1 - Front View
- 3 - Right View
- 7 - Top View
- 5 - change between Ortho and Persp
- Ortho makes it easier to work
- Persp shows the scene more naturally
- CTRL+1 - Back View
- CTRL+3 - Left View
- CTRL+7 - Bottom View

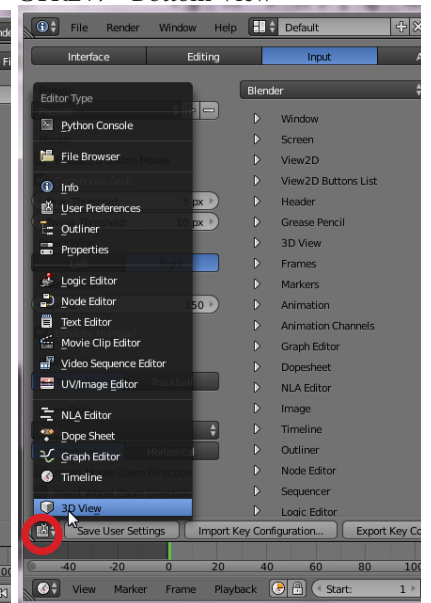
If you don't have a Numpad



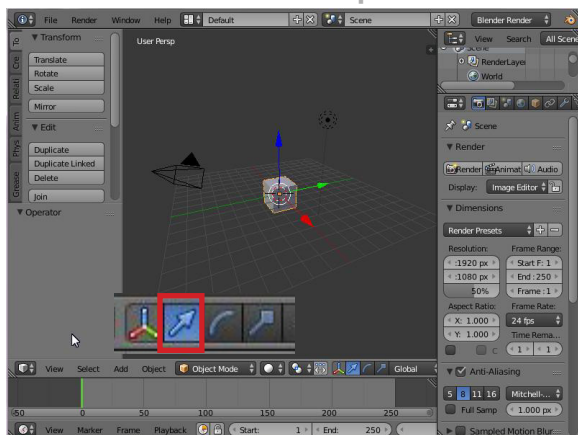
Go to User Preferences by using the little button in the 3D-window lower left hand corner to choose User Preferences from the menu.



If you don't have a numpad you can use the keyboards standard digits by going to File > User Preferences - and then the Input-tab and tick Emulate Numpad and then click the button Save User Settings

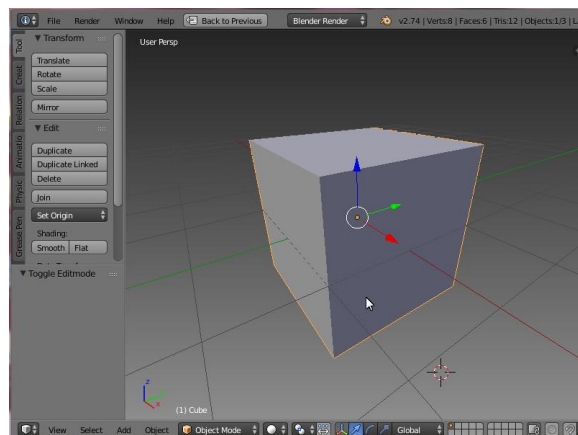


And then back to the 3D-window

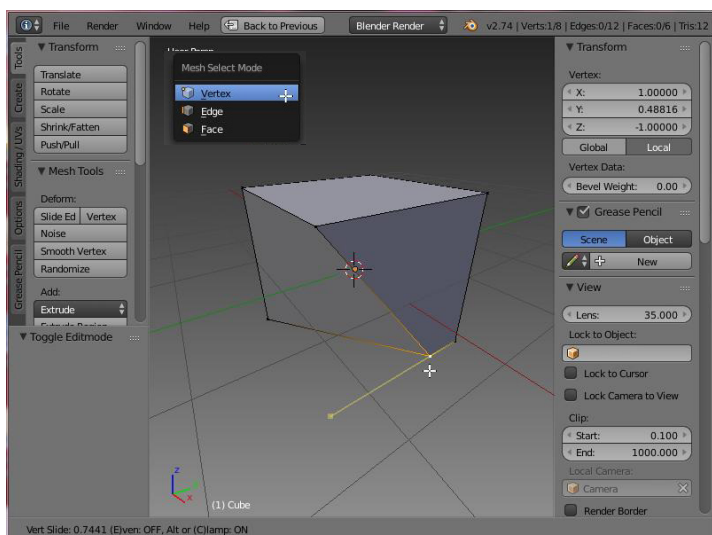


To move the cube you can use the three arrows and drag in one of them with the left mouse button (LMB). ESC-key and you abort the movement. N-key and you get the 3D-views Property panel and you can key in numbers to move the cube.

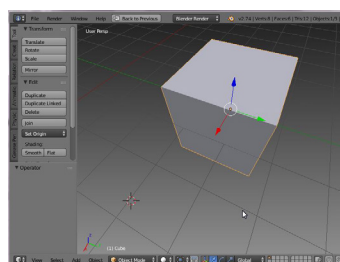
To be able to see only the 3D-view you use CTRL+Up-arrow. To go back use CTRL+Down-arrow.



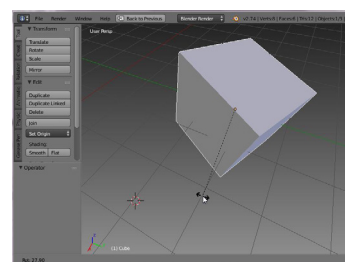
G-key and you can Grab-move the cube freely. G+Z and you get a vertical line to move it along. Confirm the movement with LMB. G+Z+3 moves the cube a distance of 3 upwards. You can also with the right mouse button grab the little white circle in the cube and drag - confirm the move with the right mouse button. If you are in some view - Front, Top and Right - G will move the cube in the views plan.



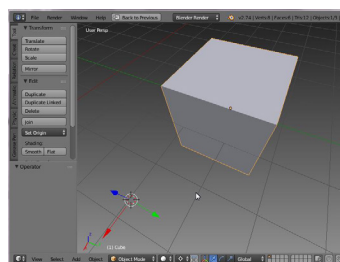
To go to Edit Mode you can use the TAB-key. A - deselects everything or selects everything. CTRL+TAB and you will get a menu and you can choose between Vertex, Edge and Face. With G+G you can move a vertex along the edge of the cube.



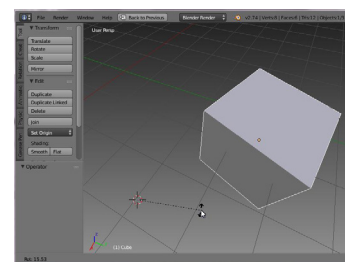
, - comma - moves the rotation center to the middle of the selected.



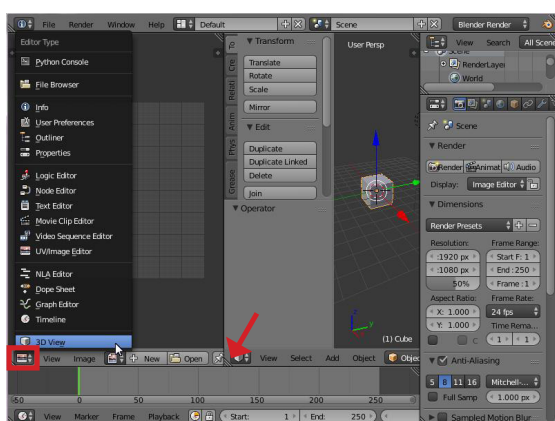
R - rotates now around the middle of the selected



. - full stop - moves the rotation center to the 3D-cursor

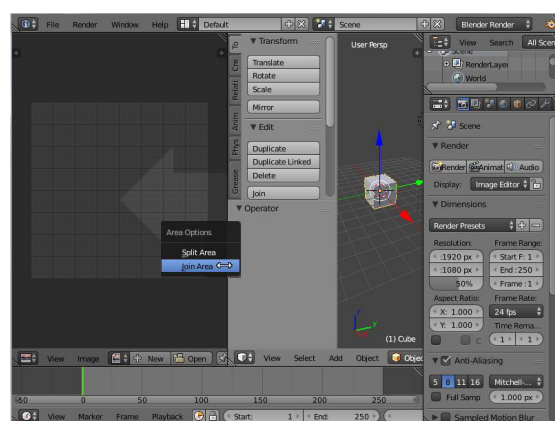


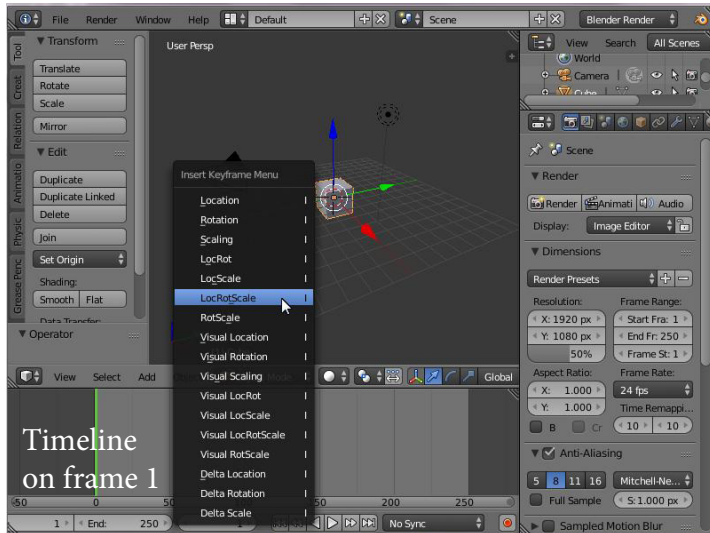
R - rotates now around the 3D-cursor



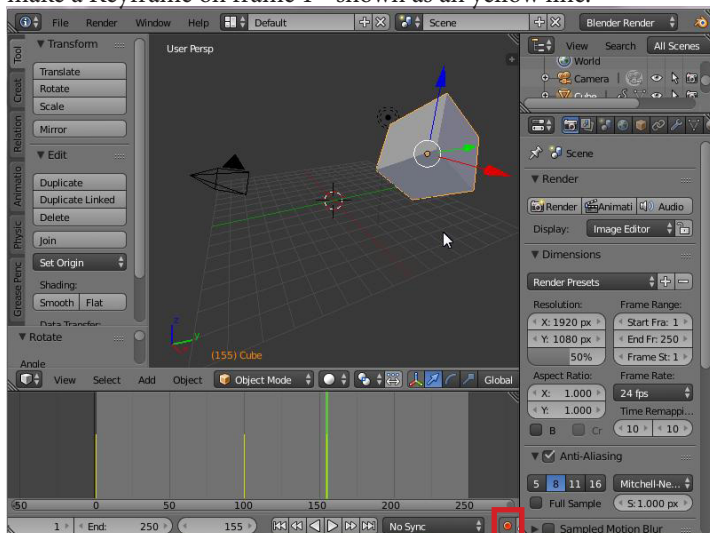
You can create new windows by dragging in the windows lower left hand corner. And you can choose which type of window to use.

To close a window place the mousepointer between two windows and right click and you will get a menu to select Join Area and an arrow that let you select which window to close.

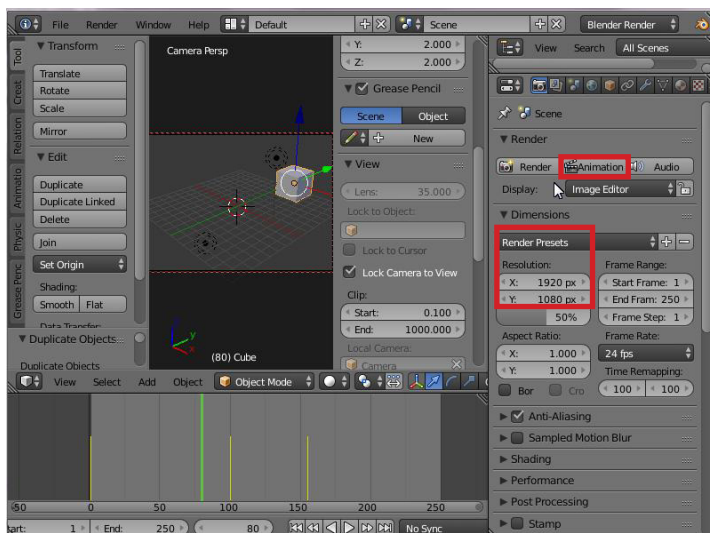




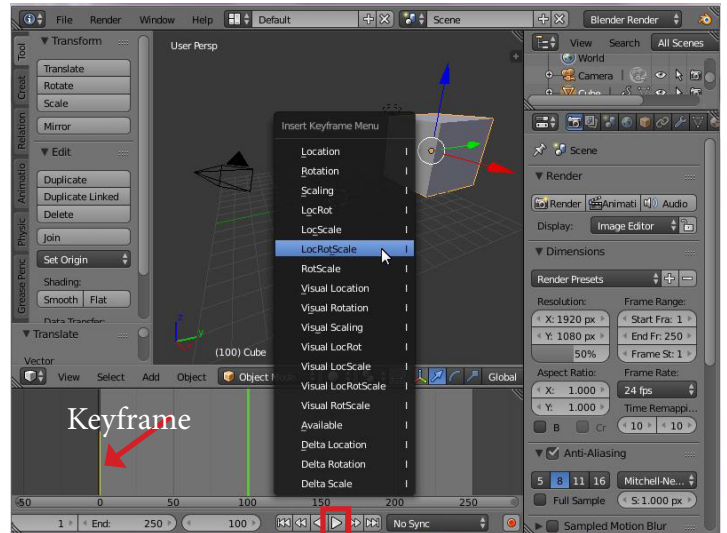
To test to do an animation start Blender to get the start scene or load it with going to File > Load Factory Settings. You will get a cube, a lamp and a camera. You can make the Timeline window larger. Select the cube. Place the mouse pointer in the 3D-view. The I-key and choose LocRotScale. And Blender will remember how the cube is located, rotated and scaled. Blender will make a Keyframe on frame 1 - shown as a yellow line.



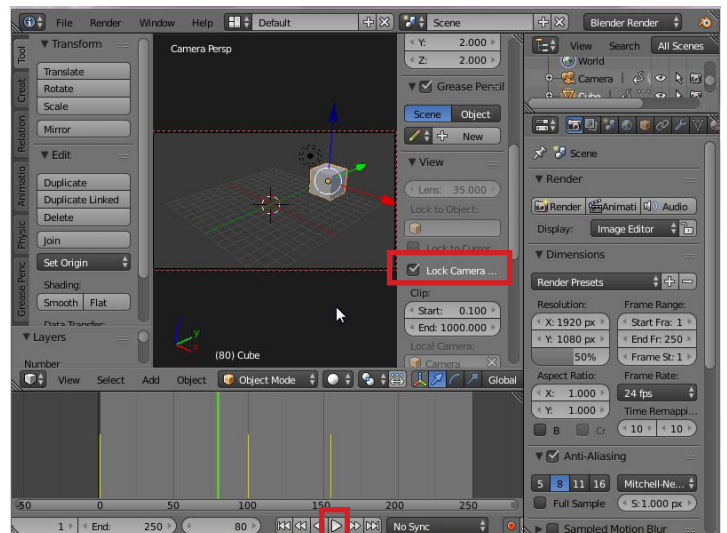
Click on the little red button - the automatic record button and Blender will automatically create keyframes on the frames along the timeline when you move, rotate and scale the cube.



The scene needs a new lamp. Select the lamp. SHIFT+D and you can drag the lamp somewhere between the camera and the cube.



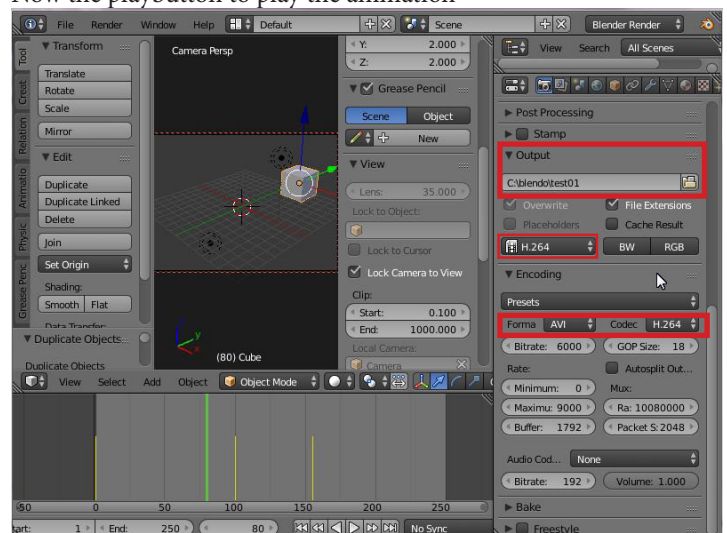
Drag in the green line to e.g. frame 100. Move the cube. Rotate it. Scale it. And then again the I-key and choose LocRotScale - and you will have a new Keyframe on frame 100. And you can click the play button and see the cube moving, rotating and scaling between the keyframes. You have created an animation!



0-key to see what the camera sees.

N-key to show the 3D-windows Properties menu and tick Lock Camera to View and then you can zoom, pan and rotate the scene to get a nice camera angle.

Now the playbutton to play the animation



You need to set a size for the movie, name it and there to save it on the harddrive. Then choose AVI and H.264 - and press the Animation button. And you have made your first animation video in Blender.